DRAFT Summary Final Report

West Virginia Stormwater Program Review

U.S. Environmental Protection Agency
Region III
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Contents

List of Abbreviations and Acronyms

Abbreviation	Corresponding Term
BMP	best management practice
CESSWI	Certified Erosion, Sediment, and Stormwater Inspectors
CFR	Code of Federal Regulations
CMS	Compliance Monitoring Strategy
CO	central office
CSR	Code of State Regulations
CWA	Clean Water Act
DMR	discharge monitoring report
DOH	Department of Highways
DWWM	Division of Water and Waste Management
eDMR	electronic discharge monitoring report
ePermitting	Electronic permitting system
EPA	[United States] Environmental Protection Agency
EQB	Environmental Quality Board
EQuIS	Environmental Quality Information System
ESCP	Erosion and Sediment Control Plan
ERIS	Environmental Resource Information System
FY	fiscal year
FTE	full-time equivalent
GPP	groundwater protection plan
ICIS	Integrated Compliance Information System
IECA	International Erosion Control Association
IRIS	Integrated Regulatory Information System
LID	low impact development
MCMs	Minimum Control Measures
MSGP	multi-sector general permit
MS4	municipal separate storm sewer system
NEEP	New England Environmental Protection
NETI	National Enforcement Training Institute

NERO	northeast regional office
NOI	notice of intent
NOT	notice of termination
NOV	notice of violation
NPDES	National Pollutant Discharge Elimination System
NWRO	northwest regional office
O&G	Oil & Gas
OEA	Office of Environmental Advocate
OEE	Office of Environmental Enforcement
OJT	on the job training
OSHA	Occupational Safety and Health Administration
PG	PG Environmental, LLC
PIO	Public Information Office
POTW	privately owned treatment works
PP	Permitting Program
PQRs	permit quality reviews
PSSD	Public Sanitary Sewer District
RO	regional office
SERO	southeast regional office
SIC	standard industrial classification
SRA	site registration application
SRAF	site registration application form
SRF	state review framework
SWMP	stormwater management plan
SWPPP	stormwater pollution prevention plans
SWRO	southwest regional office
TMDL	total maximum daily load
WLA	waste load allocation
WPSW	Water Pollution and Solid Waste Administration
WVDEP	West Virginia Department of Environmental Protection

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1. Executive Summary

The U.S. Environmental Protection Agency (EPA) Region III, with assistance from PG Environmental, LLC (PG), conducted a review of the West Virginia Department of Environmental Protection's (WVDEP) construction, municipal separate storm sewer system (MS4), and industrial stormwater programs on January 28–February 1, 2013. This report describes the observations generated by the program review and includes recommendations intended to improve the operation and effectiveness of West Virginia's programs.

The team found several positive attributes about West Virginia's stormwater programs. Chief among the attributes is that staff value the purposes of the programs they administer and are committed to implementing them to the extent they are able given resource capacity issues. Staff also actively collaborate with professionals in the larger stormwater community to enhance their knowledge of advancements in the field. WVDEP's MS4 program staff recently completed the development of a guidance manual on stormwater best management practices (BMPs). Members of the MS4 community with whom the review team met while in West Virginia highly praised versions of the document they had reviewed and noted how useful it would be to them and the state's larger stormwater community. WVDEP inspectors cited the division's erosion and sediment control BMP manual as a useful reference to them in their work and to those in the construction and development industries.

Several of the MS4 permit holders with whom the team met have mechanisms in place for ensuring responsible parties maintain post-construction stormwater controls. The city of Charleston and city of Fairmont, for example, require written agreements with responsible parties that they then file with the property deed.[1] Representatives of WVDEP and the other MS4s noted that the green technology demonstration projects of West Virginia University's MS4 program will advance the use of those technologies elsewhere in the state.

In its cursory review of WVDEP's various stormwater permits, the review team found them to contain prescriptive requirements. The department's permit application and other supporting materials are clear and readily accessible on the department's Web site. WVDEP inspectors reported the state's construction general permit as being easy to enforce due to its specificity. They experience some challenge, however, with the multi-sector general permit due to that permit's use of benchmarks. The team observed that WVDEP has issued revisions to its general permits on time.

WVDEP stormwater staff communicate regularly with members of the regulated community. The department routinely sponsors training for members of the regulated community on the technical and administrative aspects of their permits. The review team observed that central and regional office staff work hard to give a "human face" to the regulated community, and they regularly make themselves available to answer questions.

WVDEP's stormwater inspectors and their managers actively manage the inspection workload, adjusting schedules and staff allocations as needed. The inspection team completed more

[1] At the time of the review, the city of Charleston was in the process of gaining approval from the city council to implement its program in this manner as well as to make other program improvements.

stormwater-related inspections than required under WVDEP's National Pollutant Discharge Elimination System (NPDES) obligations to EPA. The department's inspectors have technical inspector certifications and routinely receive training in this and other areas.

In addition to the many positives of West Virginia's stormwater programs, the review team recognized a few limitations. Resource constraints contribute to most of the limitations observed. With regard to the construction stormwater program, the team is most concerned about the ability of water staff to address potential risks to water quality posed by the growing oil and gas (O&G) industry in the state. The pictures of some of the stormwater ponds, pipelines, and other structures the team observed are troublesome. Moreover, there appear to be other WVDEP program staff who operate at cross purposes with water staff with respect to the industry.

WVDEP's construction stormwater program is also experiencing considerable turnover of its inspection staff (at or over 50 percent in the last year). The department is unable to retain personnel in part because it does not provide inspectors with a career path and it is unable to pay them salaries that are competitive with the private sector. Some efforts are underway by the state's Division of Labor and WVDEP to address these problems. It would be ideal if these efforts could be fast-tracked. It is inefficient to have staff who are already limited in number spend considerable portions of their time on recruiting and training new staff.

Other concerns of the review team relate to WVDEP's MS4 program. Staff capacity on the permitting side is currently at one full-time equivalent (FTE). The team strongly believes the program needs additional resources. The MS4 permittees are close to entering their third permit term, meaning they have had 10 years to implement their programs. (Each permit term lasts 5 years.) However, many have failed to do so even though their initial permit required full implementation before it expired. Equally troublesome is that WVDEP has not issued recriminations to the MS4s in this area, at least in a manner that has resulted in considerable positive change. WVDEP's inspectors commented that many of the MS4s they have visited in recent years seem to be in their infancy. The team appreciates that many of the MS4s likely had viable reasons for delays in the early years. Those reasons, however, lose legitimacy when 10 years has elapsed since they were first made.

Some of the MS4 permit holders with whom the team met expressed consternation at the delays by WVDEP to review and approve their stormwater management plans (SWMPs). WVDEP stormwater staff told the team that they do not review the annual reports submitted by the state's MS4 permit holders or holders of the multi-sector general permit. NPDES-authorized agencies have a duty to review submitted reports of regulated parties. WVDEP stormwater staff in the central office reported that they review the monitoring data submitted by multi-sector general permit (MSGP) holders; however, they do not report the results of that review, or at least the subset that are near or exceed benchmarks, to department inspectors. Inspectors are responsible to find out themselves whether monitoring results warrant cause for a site visit.

Although WVDEP is in the process of developing the Integrated Reporting Information System (IRIS) that will replace some of the department's existing systems, the water portion of IRIS is not due to be completed until 2016. Moreover, IRIS will not replace some data systems, such as ePermitting and eDMR (Discharge Monitoring Reports), currently being used. Regional office

inspectors cited numerous difficulties accessing the data they need to perform oversight of permitted parties. Activities that took 30 seconds to 10 minutes to complete when the regional offices had hard copy files, now takes hours if not days.

2. Purpose of Review and Approach

In this section of the report, the review team briefly summarizes the purpose of the state program review and the approach followed during the review.

2.1 Purpose of EPA's Review

EPA conducts periodic reviews of state programs as part of its oversight responsibilities under the Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.). The Agency assesses the enforcement aspects of a state's CWA program under a process called the State Review Framework (SRF). It evaluates the technical and administrative aspects of the National Pollutant Discharge Elimination System (NPDES) program via periodic permit quality reviews (PQRs). These reviews tie into EPA's assessment of work plans submitted by states in order to receive annual CWA section 106 grant funding (subject to congressional appropriations). In general, stormwater is not a featured element of SRF reviews or PQRs. EPA Region III aims to reverse this trend by integrating stormwater into its review processes over time. Toward that end, the region has initiated reviews of stormwater programs in each of its states. The region performed reviews in Pennsylvania and Virginia in 2011, in Maryland and Delaware in 2012, and in West Virginia in early 2013. This report describes the observations associated with the recent WVDEP review.

2.2 Review Approach

Members of the program review team included the following:

- **EPA Region III Review Team Members:** Andy Dinsmore, Liz Ottinger, Lisa Trakis, and Rebecca Crane
- **PG Review Team Members:** Jan McGoldrick and Sarah Koziolkowsky

In advance of the onsite review, the team forwarded WVDEP a list (Appendix A) identifying the basic information the team would need prior to the review versus what it would need onsite. The team did not send WVDEP a copy of the questionnaire/checklist it would be using onsite (Appendix B) as it did in Pennsylvania, Virginia, and Maryland. The thought with the former reviews was that team members would be better able to prepare and likely reduce onsite review time if they had responses to questions in advance. Existing state workloads, however, made it difficult for the states to provide responses quickly enough for team members to make use of the information. The team therefore changed course in Delaware and West Virginia and forwarded a document request list instead. In advance of all reviews, the team gathered information pertaining to questionnaire items from state Web sites and the departments' completed 2008 NPDES Permitting Authority Questionnaire (USEPA 2008). The goal of these efforts was to reduce state time in preparing for the reviews.

While in West Virginia, review team members met with program staff of WVDEP's central office (CO) and two of its four regional offices (ROs). The team also met with staff of the following MS4 programs: city of Charleston, city of Fairmont, city of Martinsburg, and the Berkeley County Public Sanitary Sewer District (PSSD). The team chose to meet with some MS4s to gain an understanding of how they are controlling stormwater runoff from construction sites. WVDEP does not delegate authority for the state's construction stormwater program to

other entities or local jurisdictions. All projects that meet the state's requirements for a permit must go through WVDEP. MS4s, however, are required to have programs that are at least as stringent as the state's. At their discretion, other communities (i.e., non-MS4) may choose to implement their own programs. WVDEP staff, however, said that few do. Appendix C provides lists of review team members, WVDEP staff, and MS4 staff who participated in each day of the review. Subsequent to the review, several team members spoke by phone with a representative of West Virginia University's MS4 program to learn about that program's efforts to install and promote green technologies.

In general, the evaluation of operations at the CO and each RO consisted of two parts: (1) an interview of stormwater program staff, and (2) a brief review of stormwater program files, including general and individual permits, permittee inventories (universe lists), and compliance (i.e., inspection) and enforcement documents. An objective of the file review was to determine whether the CO and ROs are properly issuing permits, conducting compliance inspections and other reviews, performing enforcement duties where required, and documenting activities based on the state's stormwater program regulations and standard NPDES program procedures. The evaluation of MS4 operations involved interviews with key MS4 staff. The remainder of this report provides details from the various meetings and review of program materials.

3. Items Applicable to West Virginia's Three Stormwater Programs

In this section of the document, the review team briefly summarizes background material pertinent to WVDEP's three stormwater programs (construction, MS4, and industrial). Issues pertinent to the individual stormwater programs are highlighted in sections 4–6.

3.1 Federal and State Authorities

EPA authorized West Virginia to administer the CWA's NPDES program and related general permits program in 1982. WVDEP is the agency currently responsible for implementation of these programs. The department is located in Charleston.

The 1987 amendments to the Clean Water Act (Water Quality Act of 1987 [P.L. 100-4]) provided the framework for the current federal stormwater requirements. They allowed for different conceptual classifications of stormwater discharges and various permit mechanisms for regulating them (Franzetti, N.D.). In 1990 and 1999, EPA issued regulations in response to the 1987 amendments (55 FR 47990, November 16, 1990 and 64 FR 68843, December 8, 1999). Those rulemakings are referred to as EPA's Phase I and Phase II stormwater rules, respectively. In general, the Phase I rule requires permits for MS4s for medium and large communities (those with populations greater than 100,000), departments of transportation serving those communities, construction sites with land disturbance of five acres or more, and industries in 10 industrial categories. In general, the Phase II rule requires stormwater controls for smaller MS4s, smaller construction sites, and other industries discharging stormwater (Franzetti, N.D.). Water quality professionals typically refer to the federal stormwater regulations based on the category of dischargers affected: (1) construction-related entities, (2) MS4s, and (3) industries. EPA Region III has organized its review of state stormwater programs and this report accordingly. Some states organize and title their programs similarly, while others do not. WVDEP typically refers to its programs as follows: construction stormwater, MS4s, and multi-sector industrial stormwater,

In general, West Virginia's authorities for administering the CWA stormwater programs are contained in Chapter 22, Article 11 of the West Virginia Code (the Water Pollution Control Act), and Title 47 of the West Virginia Code of State Regulations (CSR).

3.2 Organizational Structure

WVDEP's Division of Water and Waste Management (DWWM) is responsible for administering the NPDES program. The division's overall mission is to control surface and groundwater pollution caused by industrial, municipal, and stormwater discharges. To achieve these ends, DWWM issues permits; oversees the construction, operation, and closure of hazardous waste, solid waste, and underground storage tank sites; and conducts related compliance and enforcement activities (WVDEP 2013c). See the sidebar for a list of other key WVDEP divisions.

Major WVDEP Program Divisions

- Division of Air Quality
- Division of Land Resources
- Division of Mining and Reclamation
- **Division of Water and Waste Management**
- Homeland Security and Emergency Response
- Information Technology Office
- Office of Abandoned Mine Lands and Reclamation

DWWM's Permitting Program (PP) and the Office of Environmental Enforcement (OEE)'s Water Pollution and Solid Waste (WPSW) Inspection and Enforcement Administration have primary responsibility for the construction, MS4, and industrial stormwater programs. Table 3–1 shows where these programs reside in the DWWM hierarchy and the specific stormwater program activities performed by each.

Table 3–1. DWWM Hierarchy and Stormwater Program Operations*

- **Clean Water State Revolving Fund**
- **Deputy Division Director's Office**
- **Permitting Program**
  - √ NPDES Team—individual NPDES stormwater permits
  - √ General Permits and Support Team—general NPDES construction stormwater permits
  - √ Regulatory / Groundwater / Underground Injection Control Group—MS4 and multi-sector general permit (MSGP) programs
- **Nonpoint Source Program**
- **Office of Environmental Enforcement**
  - Administration
    - Office of Compliance Monitoring Administration
    - Administrative Enforcement
  - Dam Safety and Administration
  - Hazardous Waste Inspection and Enforcement—staff in central and regional offices
  - √ Water Pollution and Solid Waste Inspection and Enforcement Administration—staff in central and regional offices
- **Watershed Assessment Branch**

*Offices marked with "√" have stormwater program responsibilities.

PP staff are located in WVDEP's central office, and OEE/WPSW staff are located in the CO and four ROs: (1) northwest, (2) southwest, (3) northeast, and (4) southeast. Table 3–2 summarizes the locations of the four ROs and the counties covered by each. A map showing the boundaries of the ROs is provided in Appendix D.

Table 3–2. OEE Regional Office Locations and Coverage Areas

	Northwest Regional Office (NWRO)	Southwest Regional Office (SWRO)	Northeast Regional Office (NERO)	Southeast Regional Office (SERO)
Location	Fairmont	Teays *Satellite Office—Parkersburg*	Romney	Oak Hill
Total Coverage Area	16 counties	15 counties	12 counties	12 counties
Counties Covered	Barbour, Brooke, Doddridge, Hancock, Harrison, Lewis, Marion, Marshall, Monongalia, Ohio, Pleasants, Ritchie, Taylor, Tyler, Upshur, and Wetzel	Boone, Cabell, Calhoun, Gilmer, Jackson, Kanawha, Lincoln, Logan, Mason, Mingo, Roane, Putnam, Wayne, Wirt, and Wood	Berkeley*, Grant*, Hampshire*, Hardy*, Jefferson*, Mineral*, Morgan*, Pendleton*, Pocahontas, Preston, Randolph, and Tucker	Braxton, Clay, Fayette, Greenbrier, McDowell, Mercer, Monroe, Nicholas, Raleigh, Summers, Webster, and Wyoming

*These counties are located in the Chesapeake Bay Watershed.

3.3 Program Resources

Table 3–3 shows West Virginia's annual NPDES and stormwater operating budgets for state fiscal years (FYs)[2] 2009–2013. A review of the table shows that West Virginia's NPDES operating budget increased or decreased in modest amounts (by less than 1 percent to as high as 3 percent) during the five-year period. The stormwater operating budget generally varied by approximately seven percent from year to year, except between FYs 2010 and 2011 where it decreased by 14 percent. The stormwater operating budget ranged from 20 to 24 as a percentage of the overall NPDES budget throughout the period.

Table 3–3. West Virginia Annual NPDES and Stormwater Operating Budgets FYs 2009–2013

Budget	Operating Budgets FYs 2009–2013[a] (stormwater budget as percentage of NPDES budget)				
	2009[c]	2010[d]	2011[d]	2012[d]	2013[d]
NPDES Budget	$3,600,000	$3,629,888	$3,603,142	$3,506,301	$3,583,791
Stormwater Operating Budget[b] (construction, municipal, and industrial)	$864,000 (24%)	$807,594 (23%)	$697,308 (20%)	$746,748 (22%)	$696,143 (20%)

[a] The budgets reported are for NPDES permitting operations only; compliance and enforcement activities are not included.
[b] WVDEP's NPDES permitting budget does not include a separate line item for stormwater. WVDEP staff estimated the stormwater operating budget based on the number of staff assigned to the program.
[c] USEPA 2008.
[d] Email from Yogesh Patel, DWWM Permitting Program, January 30, 2013.

At the time of the review, PP reported having approximately 38 full-time equivalents (FTEs) to support its NPDES permitting operations. Of that number, seven FTEs (18 percent) are devoted to the state's stormwater programs.[3] OEE managers reported having 53.5 FTEs to support the NPDES program. This number includes 34 inspectors, five supervisor inspectors, two specialists, and 12.5 personnel in other categories. WVDEP reports OEE as having two vacancies. OEE staff said that ideally they need 10 additional FTEs to perform their responsibilities comprehensively.

OEE personnel said they lose inspectors at a rate of 50 percent per year. Some job losses are due to retirements. The majority, however, are losses to the private sector, where inspectors can garner higher wages. Each year OEE expends considerable resources recruiting, interviewing, and training new inspectors. To combat these losses, WVDEP is re-evaluating its job classification system. It is grouping similar positions into "job families" to provide staff with progressive career steps. For example, in the inspector job category, an individual would advance from an inspector to an inspection specialist, and, finally, to a supervisor, presumably receiving increases in compensation along the way.

> **Observation 3–1.** The high turnover rate of inspectors, as much as 50 percent per year, is excessive and indicative of problems with job classification, work requirements and responsibilities, work conditions, and/or salary. WVDEP's efforts to create a "job track"

[2] Unless otherwise noted, the term "fiscal year" as used in this report refers to West Virginia's fiscal year, which is July 1 to June 30.
[3] DWWM reported the FY 2009 numbers in response to EPA's 2008 NPDES Permitting Authority Questionnaire. DWWM managers said the FTEs have remained relatively stable since that time.

for inspectors is a move in the right direction, provided efforts in this area are moving forward in a timely manner. It is not an efficient use of existing staff time to be in a continual state of job recruitment, especially when staff capacity is limited. It might be worthwhile for OEE to talk with department heads at state colleges and universities to see if some pathways could be created for new inspection staff.

3.4 Data Systems Used to Support West Virginia's Stormwater Programs

In this section of the report, the review team provides a summary of the data systems WVDEP uses to administer its construction, MS4, and industrial stormwater programs.

3.4.1 Overview

In January 2013, WVDEP kicked off a four-year, $8 million effort to develop a new enterprise-based system. The system, called the Integrated Reporting Information System (IRIS),[4] will include separate modules or sections for major departmental programs. DWWM managers are currently providing input on the features and functionality of the water component to the system. The primary reasons stated for developing IRIS are that existing databases do not operate in an integrated manner. Moreover, they were not designed with the needs of all departmental operations in mind.

Currently DWWM stormwater personnel use the following electronic databases to track the activities of permittees and internal program operations:

- Water Kiosk (also known as Doculex).
- ERIS (Environmental Resource Information System).
- EQuIS (Environmental Quality Information System).
- ePermitting.
- eDMR.

IRIS will replace ERIS and EQuIS but not Water Kiosk, ePermitting, and eDMR.

3.4.2 Water Kiosk

DWWM uses this database to store NPDES-related program files rather than maintaining hard copy files. The division's administrative personnel have been scanning hard copy files into the system and have been developing standard naming conventions as they go. The team did not ascertain the percentage of hard copy files scanned to date. RO staff said they send e-mails with scanned attachments to the CO to upload into the Water Kiosk database. The types of permit files that go into Water Kiosk are inspection reports and related correspondence. Some of the RO inspectors said Water Kiosk is time consuming to use. They said the material needs labeling. As it stands now, inspectors have to open documents until they find what they are looking for. They would like to see material organized into categories, such as "permit," "DMRs," "inspection reports," and "documentation."

[4] IRIS should not be confused with EPA's database called ICIS (Integrated Compliance Information System). IRIS, however, will be designed to report data to ICIS.

3.4.3 ERIS

DWWM uses ERIS to store key information such as permit tracking data and results of inspection and enforcement activities. PP staff access the database to review historic permit documents and compliance history. WPSW inspectors use the system prior to inspecting permitted sites. Inspectors are interested in such data elements as ownership, permit requirements, recent and historic monitoring and inspection results, and compliance history and status. ERIS is currently the system that uploads required data to EPA's Integrated Compliance Information System (ICIS).

3.4.4 EQuIS

DWWM uses EQuIS to store ambient water quality data and provide for environmental data submissions from other entities (e.g., volunteer monitoring organizations). DWWM uses the system to conduct water quality assessments, a major step in developing the required biennial CWA section 305(b) reports and CWA section 303(d) lists of impaired waters.

3.4.5 ePermitting and eDMR

Beginning July 1, 2011, DWWM required applicants for NPDES permits to submit their information electronically via the Web-enabled ePermitting system and required NPDES permittees to submit compliance-monitoring data through eDMR. Prior to the launch of these systems, DWWM and regulated parties exchanged information in hard copy form.

Both ePermitting and eDMR are Web-enabled; thus, the technical requirements for using them are minimal and include Internet connection, email account, and Internet browser software such as Microsoft's Internet Explorer, version 7.0 or higher.

One of the main advantages of the ePermitting system is that it speeds up the application process and provides for electronic storage of all application materials, which can be considerable. Increased reporting speed is also a benefit of the eDMR system. Another is that the system automates the process for determining facility compliance. It compares reported monitoring data to permit limits (or applicable enforcement orders) and flags violations or outlier data. DWWM staff told the review team that permittees have submitted 11,000 DMRs since the launch of eDMR.

Permittees can enter data manually into eDMR or upload information from their own data systems. Manual entry is likely inefficient for permittees with numerous outlets and/or parameters to examine.

Before ePermitting, the RO inspectors received copies of permits and applicable site plans and maps upon permit issuance. Now this information is stored in ePermitting.

DWWM hosted a series of training classes in Charleston and one in Martinsburg prior to and following the launch of the two systems. DWWM staff said some training continues and the Division has a Frequently Asked Question page on its Web site.

3.4.6 Other Data Systems

DWWM personnel use additional systems to support their work efforts. For example, PP uses a Microsoft Excel database to track annual report submittals by MS4s. OEE staff use a Microsoft Access database to track inspection and enforcement activities. Inspectors also use software programs such as Excel and Access to track their individual activities. Some of the RO inspectors said the Access database does not track the status of notices of violation (NOVs) or orders. Inspectors have to use a permittee name to track actions. This becomes problematic when permittees operate under multiple names.

3.4.7 System Challenges

RO inspectors require access to timely and accurate information on permitted entities prior to conducting inspections and issuing enforcement actions. Inspectors said ePermitting, eDMR, and to a lesser extent, ERIS, are anything but efficient to use. One referred to ePermitting and eDMR as "a giant step backward." Below is a synthesis of staff comments in this area.

- CO staff conduct a data quality assurance and data quality control check of submitted monitoring data before it is uploaded to ERIS. There is lag time between when a permittee submits data and when it is available for review. Given decreased staff capacity, the lag time can be substantial.

- The eDMR system does not notify inspectors when permittees have submitted data.

- Inspectors review files of permitted facilities before they conduct inspections. Before the electronic systems, inspectors pulled the information they needed from the RO's hard copy files. Now, they must go to multiple databases to obtain the same information. For example, they go to Water Kiosk to obtain inspection reports and related correspondence. They go to ePermitting to view site plans, and they go to ERIS and eDMR for monitoring data.

- RO inspectors strongly dislike ePermitting and eDMR because the systems take an inordinate amount of time to load on RO computers. Some inspectors suggested segregating data in eDMR, for example, by year or some other time increment. The intent would be to limit the information that loads on RO computers. In the example given, only the year selected would load on RO computers.

- Inspectors said that before ePermitting, they could access hard copy site plans from RO files and review them in 30 seconds to 10 minutes, depending on the size of the facility. The same exercise through ePermitting could take hours to days.

- At the time of the review, inspectors could only view site plans through ePermitting. The inspectors, however, require the plans in their hands when they visit a site. DWWM was in the process of installing large format printers in each of the ROs to remedy this problem.

- For any given permitted facility, eDMR does not allow inspectors to capture monitoring data for all discharge points. It also does not allow them to see total violations over selected periods (e.g., a month). Single monitoring events are snapshots in time. To understand facility processes and operations, inspectors need to see monitoring results over time.

- Several DWWM staff stated that WVDEP information technology personnel do not want to spend time to fix problems in the ePermitting or eDMR systems because their resources are committed to the development of IRIS.

Observation 3-2. The review team strongly urges DWWM to secure support from WVDEP's information technology program to solve problems with the division's data systems. This is a crucial activity for those systems IRIS will not replace, namely ePermitting and eDMR. The team also urges CO staff to recognize the challenges the systems pose to RO staff and commit to resolving the problems collectively. Given the high turnover rate of inspectors, it seems any effort to minimize legitimate inspector frustrations would be worthwhile.

Observation 3-3. The team encourages DWWM to continue assisting the regulated community in using ePermitting and eDMR by offering additional training sessions, establishing a hot line, or employing other cost-effective strategies. The point is to have a long-term outreach plan in place, if one does not already exist. Some of the reasons for a long-term plan are that IRIS is not going to replace ePermitting and eDMR; new permittees will be entering the program continually; and some existing permittees (e.g., those with infrequent monitoring requirements) are likely to forget how to use the system between transmissions.

3.5 Compliance and Enforcement Procedures and Tools

OEE is responsible for conducting inspections of stormwater permitted sites and initiating enforcement actions where necessary. An assistant chief inspector manages the program from the CO and oversees an environmental inspector supervisor in each of the four ROs. The supervisors, in turn, manage region-specific inspectors. In addition to NPDES-permitted entities, OEE's WPSW inspectors evaluate entities permitted under the state's solid waste and groundwater protection laws. An RO supervisor may distribute inspection responsibilities on a county, media, and/or facility type basis. Most ROs have inspectors who specialize in construction stormwater. OEE refers to them as "stormwater inspectors." RO supervisors are likely to task the stormwater inspectors with MS4 and MSGP inspections as well. The exception is in the Potomac Watershed where the construction stormwater inspector is funded by EPA's Chesapeake Bay program.

3.5.1 Inspection Priority Scheme

EPA requires states to commit to certain inspection frequencies for the core NPDES program and for wet weather sources on an annual basis. Decisions are made according to an EPA policy

document called the Compliance Monitoring Strategy (CMS) (Nakayama 2007).[5] WPSW personnel refer to the annual commitment inspections as "CMS" or "bean count" inspections. The assistant chief inspector requires each RO to complete its respective list of CMS inspections each federal fiscal year. RO supervisors assign a certain number and type of CMS inspections to their respective field staff. Table 3–4 shows a typical breakdown of annual commitments to stormwater inspections as provided by OEE staff during the review. OEE staff opinions varied when asked if CMS priorities align with state or regional priorities. Some said, "Sometimes," and others said, "Not at all."

Table 3–4. Typical Percentage of CMS Stormwater Inspections to be Completed Annually

Type of Stormwater Inspection	Percent Inspected Per Year
Construction stormwater projects with ≥ 5 acres of land disturbance[a]	10%
Construction stormwater projects with < 5 acres of land disturbance[a]	5%
MS4s during first 7 years of permit	14.5%[b]
MS4s during subsequent 5-year permit terms	10%
Industrial stormwater sites[c]	5%

[a]The CMS referenced is based on the older 5-acre threshold requirement (federal requirement). WVDEP distinguishes its projects as either less than or greater than or equal to 3 acres.
[b]OEE staff reported inspecting 20 percent of the MS4s during the first permit term.
[c]Industrial sites include those covered under the MSGP or those industries that have individual stormwater-only permits.

OEE managers said they typically get to more than 10 percent of the larger construction stormwater sites annually. Timing is important on visiting these sites given the nature of operations. OEE inspectors can conduct MS4 and MSGP inspections as they fit into the schedule. These inspections are not driven by stage of work.

Beyond the CMS sites, the assistant chief inspector or RO inspector supervisors establish other inspection priorities. For example, they might focus work in a given year on certain discharger types because they expect those discharger types to have compliance problems. In recent years, OEE honed in on salvage yards and concrete plants to address compliance concerns. RO supervisors and field staff use their best professional judgment to determine inspection priorities based on a variety of factors, such as complaints received, compliance history, recent monitoring or other violations, complexity of site, and potential risk to public health or the environment. Inspectors might organize their schedule by pinpointing a CMS inspection and then conducting all other required inspections in the area. The RO supervisors talk with their inspectors on an ongoing basis to assess and change priorities as needed. The RO supervisors provide inspectors with target numbers of inspections to complete annually. The RO supervisors compare actual numbers to the targets as part of the annual performance review process.

[5] Full implementation of the CMS occurred at the start of federal FY 2009. The federal fiscal year is October 1 to September 30.

OEE inspectors spend a good portion of their time responding to complaints, especially during the wet weather months of May through October. Complaints come through various channels: WVDEP's Office of Environmental Advocate (OEA) or Public Information Office (PIO), the Office of the Governor, the office of a state legislator, or the ROs themselves. RO inspectors also receive complaints while in the field. The OEA sends the complaints it receives directly to the applicable ROs, whereas the PIO forwards them to OEE (CO). Generally, most complaints are addressed by the ROs. Inspectors are responsible for logging complaints and documenting their investigation of the complaint as well as the results. Inspectors are also expected to inform the complainants of actions taken.

Table 3–5 lists the number of stormwater-related complaints OEE received and responded to in FY 2012.

Table 3–5. Number of Stormwater-Related Complaints OEE Received and Addressed in FY 2012

Program Area	Number of Complaints Received	Number of Complaints Investigated*
Construction stormwater general permit sites	79	81
MS4s	0	0
Industrial stormwater permit sites**	4	5

*The number of complaints investigated can be higher than complaints received if investigation carried over from a previous reporting period or if one complaint required multiple investigations (per email from Joe Hickman, EEI, April 10, 2013).
**The sites include those covered under MSGP or those with individual stormwater-only permits.
Source: WVDEP 2013d.

3.5.2 Enforcement Processes and Tools

OEE staff do not operate by procedures specified in a formal enforcement response plan. They simply learn the procedures through their superiors. OEE management, however, use a penalty matrix when developing orders with monetary penalties. Table 3–6 lists the types of enforcement tools used in WVDEP's stormwater programs.

Table 3-6. Types of Enforcement Tools Used in WVDEP's Stormwater Programs

Routine Enforcement Tools	Formal Enforcement Tools
Onsite conversations between inspector and operator	Administrative Orders* (e.g., Cease and Desist)
Written warnings or inspection reports	Consent Orders (also called Penalty Orders)
NOVs	Civil Actions
	Criminal Actions (referrals to EPA Region III)

*OEE also uses the term "Unilateral Orders" when referring to Administrative Orders.

RO inspectors have discretion on use of routine tools. They notify their supervisor when there are recurring issues at a site and when additional enforcement actions are required. The

supervisor and assistant chief inspector decide whether they should issue a unilateral or penalty order. OEE staff said the unilateral orders are the fastest means of enforcement action. All OEE penalty orders go to a separate group in OEE for review. Staff in this group can change the penalty amounts upward or downward. Typically, they discuss the case and changes in penalty amounts with the assistant chief inspector. Appeals to enforcement actions go before West Virginia's Environmental Quality Board (EQB).[6] WVDEP has its own legal department; OEE forwards all civil actions to that office, and it refers all criminal cases to EPA Region III. Table 3–7 shows the highest levels of enforcement OEE staff recalled ever having taken in relation to stormwater sites.

Table 3–7. Highest Level of Enforcement Actions by Stormwater Group

Action	Construction	MS4	Industrial
Unilateral Order		•	
Consent Orders		•	•
Civil Cases	•		
Criminal Cases			

RO inspectors expressed frustration with the procedures for issuing monetary penalties. They noted that they could draft a Consent Order with a particular fine amount using the penalty matrix, only to find out later that the business owner negotiated it down to a fraction of the original amount with CO's penalty review staff. The inspectors said that from a business standpoint, it can be cheaper to be fined (e.g., $1,000) than to incur the costs to comply with permit requirements. More problematic to them, however, is that the process seems to make enforcement actions uneven throughout the state.

> **Observation 3–4.** The review team encourages OEE to re-evaluate its processes for negotiating penalties and institute changes to ensure uniform application throughout the state. [Note to EPA: Do we want to say this given that negotiations are inevitable as part of the enforcement process? Does EPA have standard language regarding consistency issue that we should use?]

Some enforcement actions require that RO inspectors travel to Charleston to meet with the fined permittee and OEE CO staff. The travel time and distance can be significant for NERO inspectors. A roundtrip between Romney and Charleston is 450 miles, which equates to approximately 8 hours of travel time. This is time spent in addition to the meeting time. NERO inspectors said the situation deters them somewhat from taking certain enforcement actions.

> **Observation 3-5.** The review team suggests OEE consider, if it has not already done so, the use of video conferencing technologies for some of the enforcement meetings to reduce travel burden (i.e., time and expenses) on RO staff.

The O&G industry is expanding operations in northwestern West Virginia (Marcellus shale production). Impacts from this and supporting industries are disturbing large areas of land.

[6] The EQB is a quasi-judicial board whose members are responsible for reviewing appeals of DWWM's issuance or denial of permits, permit conditions, or enforcement decisions.

Moreover, the activities have the potential to pollute ground and surface waters. OEE inspectors have responsibility for assessing these facilities except for drill pad issues. See sections 4.3 and 4.11 for the review team's observations on this issue.

3.5.3 Compliance and Enforcement Reporting

OEE reports monthly to the WVDEP Secretary on the number of inspections performed and enforcement actions initiated. The office summarizes this information annually for the governor in an annual report. WVDEP makes the report available to the public via its Web site. Currently, the FY 2010–2011 Annual Report is available (WVDEP 2013a).

During the onsite review, WVDEP staff provided the review team with the number of inspections performed and violations identified in FY 2012. Table 3-8 shows the data provided.

Table 3–8. WVDEP Stormwater Inspection and Enforcement Totals, FY 2012

Inspections and Enforcement Actions by Stormwater Program	Permitted w/o violation	Permitted w/ violation	No Permit—Violation*	Permit not required, no violation	Field Reviews	TOTALS
Construction Stormwater						
Construction Inspections	18	15	3	1	1	38
Construction Inspections > 3 acres	359	168	32	40	32	631
Construction Inspections <= 3 acres	398	64	19	11	12	504
Construction NOVs	0	516	48	0	0	564
Construction Administrative Orders						77
Construction Civil Referrals						0
Construction Criminal Complaints						0
MS4s						
MS4s Inspected						6
MS4 NOVs						3
MS4 Administrative Orders						1
MS4 Civil Referrals						0
MS4 Criminal Complaints Signed						0
Industrial Stormwater						
Industrial Inspections	109	86	42	5	23	265
Industrial NOVs	0	126	64	0	0	190
Industrial Administrative Orders						7
Industrial Civil Referrals						0
Industrial Criminal Complaints						0
All Stormwater						
Inspections						1,444

Inspections and Enforcement Actions by Stormwater Program	Permitted w/o violation	Permitted w/ violation	No Permit—Violation*	Permit not required, no violation	Field Reviews	TOTALS
NOVs						757
Administrative Orders						85
Civil Referrals						0
Criminal Complaints						0

*Site does not have a permit but should. Therefore, the site is in violation.
**Industrial stormwater sites include those covered under MSGP and those with individual stormwater-only permits.
Source: WVDEP 2013d.

3.6 File Review

The review team examined a random sample of general and individual permit files and a similar number of compliance and enforcement files for all three stormwater programs. The review team found the files to be, in general, satisfactory.

3.7 Training, Outreach, and Education

Review team members asked most WVDEP personnel interviewed what types of technical training they had received relative to their stormwater program responsibilities. A brief overview of responses to this question follows.

3.7.1 Internal Training for CO and RO Staff

PP and OEE staff receive training in various forms—on-the-job training by working with senior staff and through internal meetings/forums. Permit writers often rely on senior engineering staff for guidance regarding plan reviews. When PP issues a new general permit, it usually conducts a regional conference to review permit requirements and work through likely implementation issues. PP staff told the review team they would like to have a regional conference on common stormwater problems with sites and problems with site maps, specifically those related to the MSGP.

OEE inspectors typically write their first 10 NOVs with steady input from their respective RO supervisor before ever writing and issuing them on their own. The OEE CO has trained RO staff on how to write enforcement documents. It is important to develop NOVs so that staff can efficiently pull the information into an administrative order. CO staff said they need to conduct this training again, given the turnover rate of inspectors.

3.7.2 External Training for CO and RO Staff

PP staff used to attend EPA's national stormwater conference, usually offered annually. DWWM has resource limitations, so fewer, if any, staff have been able to attend in recent years. WVDEP requires its OEE inspectors to take the EPA Compliance Inspector Training course available through the National Enforcement Training Institute (NETI). In addition, inspectors receive 40 hours of Occupational Safety and Health Administration (OSHA) training and take annual refresher and first aid courses. Inspectors also participate in the New England Environmental Protection (NEEP) training.

3.7.3 Training and Outreach Provided to Regulated Communities

Both PP and OEE provide outreach and training to the regulated community. DWWM's Web site contains guidance in each of the stormwater program areas. As noted in section 4, DWWM has been hosting training on ePermitting and eDMRs since mandating the use of these programs, which began in 2011. Sections 4–6 of this report provide additional details regarding DWWM training and outreach to the regulated community.

3.8 Oversight of Regional Offices

OEE's assistant chief inspector and RO supervisors conference quarterly to discuss all program activities. The assistant chief inspector also talks by phone with RO supervisors on a steady and as-needed basis. The RO supervisors generally hold monthly meetings with their inspectors to review the status of operations and to discuss current issues. One purpose of the conversations is to ensure consistency in approach.

3.9 Overall Program Strengths Cited

DWWM personnel cited the quality of staff and communication among that staff as their greatest strength. The OEE assistant chief inspector said the RO supervisors are one of the office's greatest strengths. They are experienced and committed to ensuring that staff meet program goals and objectives. OEE inspectors also value the skill levels of their fellow inspectors.

OEE has historically had a good working relationship with PP, especially under the construction and industrial stormwater programs. The former group director was an inspector earlier in his career. He understood the needs of inspection staff and sought their input when developing permits. OEE hopes to have a similar relationship with the new group director when that director is hired. RO inspection staff and the MS4s visited all noted positive aspects of CO MS4 staff visiting their offices on occasion.

3.10 Overall Program Challenges Cited

DWWM staff said resource limitations are their greatest challenge. Existing staff and resources are spread thin. PP said incorporating total maximum daily load (TMDL) requirements in permits and plan review processes is a challenge, especially with capacity limitations. An OEE staff member stated that an ongoing challenge to DWWM is addressing pollution caused by unsewered or under-sewered communities. Residents in these communities lack the resources, understanding, or desire to address problems. West Virginia also has many small package wastewater systems that are old and poorly maintained. When they fail, they contribute to water quality contamination.

OEE staff have concerns about the quality and accuracy of data in DWWM's electronic systems. This is a critical issue to OEE in that the systems are the File of Record, a critical element used during enforcement actions. RO inspectors find the data systems to be a major limiting factor in their productivity. They need resolution of these issues to easily access the material they need to conduct proper oversight of DWWM's permittees.

4. Observations and Recommendations—Construction Stormwater Program

The review team presents its observations of West Virginia's construction stormwater program in this section of the document. Where appropriate, the team also provides recommendations.

4.1 Program Background and Authorities

PP and OEE staff are responsible for implementing WVDEP's construction stormwater program. PP staff develop the permit, application forms, and guidance materials, while OEE personnel conduct inspections and undertake enforcement actions where necessary. PP has approximately seven FTEs devoted to the state's construction, MS4, and industrial stormwater programs. OEE has 34 regional office inspectors. Most ROs, however, have one or two inspectors who specialize in construction stormwater. These inspectors are assigned typically to MS4 and industrial stormwater inspections as well.

West Virginia's construction stormwater program consists of requirements for erosion and sediment control, stormwater management, and NPDES permit coverage. WVDEP's authority for the construction stormwater program includes CWA section 402 (U.S.C. 1251 et seq.) and Chapter 22, Articles 11 and 12 of the West Virginia Code (W. Va. Code R. §§ 22-11 and 22-12). WVDEP has operated a construction stormwater program for approximately 20 years, although the program has evolved with the promulgation of the CWA and associated state requirements. The state's regulations require coverage for disturbances of less than one acre of total land area, provided the disturbances are not part of a larger common plan of development or sale.

4.2 Program Assistance and Delegation

WVDEP does not delegate authority for its construction program to other entities. WVDEP staff, however, said that local jurisdictions have floodplain regulations. Many have grading and building permit requirements. WVDEP's MS4 permit holders must remind parties operating under local permits when those parties are required to apply to the state for NPDES permit coverage.

4.3 Facility Universe

DWWM covers most construction projects that will disturb one or more acres of land under its general NPDES permit. The division, however, issues individual NPDES permits for construction stormwater projects where it deems necessary. It currently has 5–6 entities with individual permits.

At the time of the review, DWWM staff reported having 2,196 general construction stormwater permittees. Table 4–1 distinguishes the permittees by project size and includes the number rolled over from previous quarters.

Table 4–1. DWWM Construction Stormwater General Permittees as of January 2013

Project Size or Type	No. of Permittees
Projects with < 3 acres of land disturbance*	541
Projects with ≥ 3 acres of land disturbance*	662
Number of rollover permits from previous periods	993
Total permittees	2,196

*WVDEP's current general permit requires the use of different application materials for projects less than 3 acres versus those greater than or equal to 3 acres. DWWM's data system, ERIS, contains a field for project size, so DWWM is able to generate reports based on the current regulatory threshold of 1 acre when needed.

DWWM staff said the NWRO and SWRO have historically had the greatest number of construction projects. The eastern panhandle experienced considerable growth at the start of the century up until the economy slumped in 2008. Currently, the Interstate-79 corridor in the north central region of the state between Harrison and Monongalia Counties is witnessing an increased number of construction projects. This area is fast becoming a technology corridor for the O&G industry. See Figure 4–1 for a county map of West Virginia and Appendix D for a map showing RO boundaries.

Figure 4-1. County map of West Virginia.
Source: http://geology.com/county-map/west-virginia.shtml.
.

DWWM identifies non-filers via complaints, tips from MS4 communities, and OEE inspector observations. RO inspectors typically identify two to three new permittees each month. When an RO inspector identifies a site operating without a permit, the inspector issues an NOV and notifies site operators that they need to contact WVDEP and file for permit coverage.

O&G exploration is occurring in Wetzel County and quickly moving into Tyler County. These counties are located in the upper northwest corner of the state just below the northern panhandle. NWRO staff said they lack the resources to conduct thorough investigations of non-filers. The only means to identify the increasing number of O&G drilling sites and pipelines is through aerial observation. WVDEP works with the state's Department of Aeronautics to conduct the flights. NWRO is dedicating staff and resources to these types of inspections two to three times per month. Aerial inspections require more planning time than on-the-ground inspections do. NWRO has to make arrangements for the pilot and helicopter; flight plans have to be developed and filed; and schedules have to be coordinated between NWRO staff and the pilot.

4.4 Permitting Activities

As noted, DWWM provides coverage for the majority of construction stormwater projects in the state via its general permit. DWWM currently has 5–6 projects with individual NPDES permits.

4.4.1 General Permit

DWWM issued the current permit (NPDES/Water Pollution Control Permit No. WV0115924) on December 5, 2012. Its effective date is January 3, 2013, and its expiration date is January 3, 2018.

4.4.1.1 Permit Application

DWWM requires the responsible party for all other eligible projects to complete an NOI or Site Registration Application Form (SRAF) based on project size as summarized in Table 4–2. DWWM requires the owner to obtain the permit when the construction activity is operated by someone other than the owner.

Table 4–2. Construction General Permit Application Requirements

Characteristics of Land Disturbance	Document to Complete	Submittal Times	Fee*
1–3 acres	NOI	15 days prior to date construction begins	$300
1–3 acres and construction will last 1 year or longer	SRAF	60 days prior to date construction begins	Fee based on acreage disturbed and precipitation zone (range is $700–$1,750)
1–3 acres discharging to or upstream of a Tier 3 water			
≥ 3 acres			
≥ 3 acres discharging to a Tier 3 water	SRAF	100 days prior to date construction begins	
≥ 100 acres	SRAF	100 days prior to date construction begins	Fee based on acreage disturbed and precipitation zone (range is $700–$1,750)
≥ 3 acres and initial grading will last a total of one cumulative year or more			

Characteristics of Land Disturbance	Document to Complete	Submittal Times	Fee*
Additional Characteristics			
Project (regardless of size) will occur in one or more of the following counties: Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, or Pendleton	Complete Chesapeake Bay TMDL Addendum form	As above	As above

*WVDEP charges permit fees annually until responsible parties submit NOTs for their projects.

4.4.1.2 Special Application for Projects in Chesapeake Bay Watershed

If the project will occur in a county in the Chesapeake Bay Watershed, the applicant must complete an additional form, called the Chesapeake Bay TMDL Addendum Form. This form asks responsible parties whether the project is new development, redevelopment, or retrofit BMPs. Parties must submit a topographic map showing the project boundary and limits of disturbance, total project area and total disturbed acreage, acres in land use type(s) in pre- and post-development states, and land use types. In addition, applicants are required to state if the project will occur within an MS4 community and if the stormwater management plan meets a volume reduction or retention standard (1-inch capture, 95th percentile, or other).

Applicants are also required to indicate if they are proposing any post-construction stormwater management BMPs. If so, applicants must complete a table documenting total acres drained, impervious acres drained, latitude and longitude, and BMP coordinate location (outlet or center point) for each urban BMP. Table 4–3 lists Chesapeake Bay applicable BMPs.

Table 4–3. Chesapeake Bay Post-Construction Stormwater Management BMPs

- Dry detention ponds
- Hydrodynamic structures
- Dry extended detention ponds
- Wet ponds and wetlands
- Infiltration trenches and basins (with sand or with or without vegetated layer)
- Bioretention (which includes rain gardens) with or without underdrain and soil type (A/B or C/D).
- Green/vegetated roof (extensive or intensive)
- Permeable pavement and pavers with or without underdrain, soil type, and with or without sand or vegetated layer
- Filtering practices (sand, organic media, proprietary materials)
- Vegetated open channels/bioswales with or without underdrain and soil type
- Riparian forest buffers (buffer dimensions in feet)
- Riparian grass buffers (buffer dimensions in feet)

4.4.1.3 SWPPPs and GPPs

Each responsible party is required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and a Groundwater Protection Plan (GPP). WVDEP's permit specifies the items to be included in the SWPPP. DWWM provides a GPP template for applicants on its Web site. WVDEP refers to the SWPPP as an Erosion and Sediment Control Plan (ESCP) for NOI applicants. WVDEP does not require NOI applicants to submit their ESCPs for review. For SRAF applicants, the SRAF and the ESCP constitute the SWPPP. WVDEP requires SRAF applicants to submit their SWPPPs for review. All permittees are required to retain their SWPPPs and GPPs onsite and to make them available for review by WVDEP inspectors.

4.4.1.4 Tier 3 and TMDL Waters

DWWM's general permit notes that the division will undertake a CWA antidegradation analysis for discharges to Tier 3 waters. The permit also includes a condition for projects discharging to waters with approved TMDLs. If a TMDL has acreage limits for stormwater construction general permit registrations, DWWM will authorize permit coverage for no more than one year. If the TMDL acreage limits have been met by the time of application, DWWM will establish effluent limits for the permittee and specify appropriate discharge monitoring requirements. DWWM will not limit coverage to one year when discharge monitoring is required.

4.4.1.5 NOT Requirements

When construction activity is completed and all disturbed areas are stabilized, the responsible party must submit an NOT to end coverage under the general permit. DWWM staff stated that permittees are generally submitting NOTs at the completion of their projects. DWWM continues to bill permittees annually for permit fees until NOTs are received. This practice tends to discourage permittees from failing to submit NOTs. For those permittees who fail to pay the annual fee, DWWM terminates their permits; permittees requiring additional permit coverage must reapply.

4.4.1.6 Post-Construction Requirements

WVDEP does not have legal authority to specify post-construction standards in its construction general permit. The general permit contained such requirements in 1992–1997, but because of political pushback, WVDEP removed them. WVDEP's permit states, "The completed project shall convey stormwater runoff in a manner that shall protect both the site and the receiving stream from post-construction erosion." It goes on to suggest practices for permittees to consider, including LID. It concludes by noting, "The use of impervious surfaces for stabilization should be avoided." (WVDEP 2013b)

DWWM said the state's MS4s might have post-construction standards and perform reviews to ensure their standards are met. DWWM does not review SWPPPs to ensure they are meeting local post-construction standards where they exist. These statements were confirmed when the review team met with staff from some of the state's MS4s.

The city of Charleston MS4 inspectors, for example, currently tell project owners and operators that they must install and maintain post-construction BMPs. The inspector then has to remember to include the site on a future inspection list so the city can verify controls are operating and are being maintained. At the time of the review, MS4 personnel were in the process of finalizing a proposal to the city council. The proposal, if adopted, would grant the MS4 program the authority to require owners and operators to sign a formal agreement denoting who will be responsible for implementing and maintaining post-construction BMPs. The proposal includes procedures for attaching the agreement to the property deed. It also provides the program with the authority to undertake enforcement when needed.

The city of Fairmont requires site owners to sign a post-construction BMP maintenance agreement when they apply for a grading permit. The county files the signed agreement with the

property deed. The MS4 program also requires that site owners or operators submit as-built design plans. The MS4 staff reviews each plan and then inspects the site against the plan.

> **Observation 4–1.** Unlike West Virginia, many neighboring states have post-construction stormwater management regulations that apply statewide, rather than being limited to MS4 areas. EPA is in the process of developing a national rulemaking for new development and redevelopment that could require broader application of post-construction requirements.[7]

4.4.2 Individual Permits

PP reported that it currently has 5–6 projects with individual construction stormwater permits. PP determines whether a project needs an individual permit based on its size and complexity or based on the nature of the receiving water. Staff reported issuing an individual permit on one project because it was extremely large and had multiple phases.

4.5 Plan Review Activities

PP staff review SWPPPs for the projects required to submit them. The program does not review GPPs because it does not require applicants to submit them. The most experienced plan reviewer tends to handle all highway and large construction projects, while the others handle the rest. PP staff said most of the reviewers are trained as scientists as opposed to engineers, although there are engineers in PP with whom they can consult as needed. Typically, the plan reviewers engage in back-and-forth communication with the applicants before approving the plans.

4.6 Data Management

PP and OEE staff primarily use Water Kiosk, ERIS, ePermitting, and eDMR to implement the construction stormwater program. Refer to section 3.4 for further background on DWWM's data systems.

When asked, DWWM was readily able to provide review team members with a list of general permittees for which it is responsible. The list included all open and closed general construction stormwater permittees and multi-sector general permittees (including those with no exposure certifications). PP generated the list via ERIS. The system does not have unique identifiers for individual construction stormwater or individual industrial stormwater permittees. DWWM will likely address this issue under the new system (IRIS) currently under development at WVDEP.

4.7 Compliance and Enforcement Activities

Section 3.5 of this report provides an overview of WVDEP's compliance and enforcement procedures and tools. To avoid redundancy, the review team has not repeated that information here. The information discussed below is generally unique to the construction stormwater program. Staff at some of the MS4 sites visited by the review team made comments with respect to the construction stormwater program.

[7] http://cfpub.epa.gov/npdes/stormwater/rulemaking.cfm

4.7.1 Inspections

NWRO and NERO staff stated that they pull lists and inventories of construction permittees from ERIS. At the end of each month, the ROs review ERIS reports and develop a list of inspections for the following month. Individual RO inspectors typically prepare their own lists with input from the RO supervisors.

As noted previously, each RO has an inspector who specializes in construction stormwater. RO supervisors typically assign other types of stormwater inspections to these inspectors as well. This is not true for the construction stormwater inspectors in the Chesapeake Bay Watershed. An EPA Chesapeake Bay program grant funds the positions, and those inspectors are limited to construction projects.

Inspectors use standardized checklists specific to inspection type, portable computers, and electronic templates to develop their inspection reports. Some have the ability to print while in the field. Inspectors have 10 days to complete and submit inspection reports once they have completed the site visit.

When asked about the procedures to inspect a construction site, the RO inspectors said they walk the perimeter of the site to verify controls have been installed where intended and are operating properly. They check whether the permittee is self-monitoring and identifying and documenting problems and their resolution. The inspectors also make visual observations of the discharge point(s). Inspectors may collect samples of discharge water if they are concerned about the effectiveness of BMPs to protect water quality.

PP staff generally inform OEE inspectors when a new site has been authorized for permit coverage. This tips the inspector off to plan a visit. RO staff, however, stated that inspectors sometimes do not visit a site prior to groundbreaking. The variables that lead to an inspection before groundbreaking include job size, complexity, and proximity to sensitive areas (e.g., wetlands, Tier 3 streams, visibility to the public, etc.). West Virginia's Department of Highways (DOH) is the only entity that requests pre-construction meetings with WVDEP.

Inspectors plan to visit sites once per construction phase during a rain event. They also conduct inspections once the site is stabilized. The purpose of the latter inspection is to ensure the post-construction BMPs were installed correctly, are functioning properly, and are being maintained. NWRO inspectors said they often have to rely on the consulting engineers at sites to make sure stormwater BMPs are properly installed.

Inspectors said they are more likely to see LID or green technologies in MS4 areas. Some of the MS4 staff interviewed, however, said they also are not seeing increased use of green technologies. They said developers think they are too costly, which is not necessarily true.

4.7.2 Compliance and Enforcement Reporting

OEE reported that they performed 631 inspections of sites greater than three acres and 504 inspections of sites less than or equal to three acres in FY 2012. OEE's CMS obligations are to inspect 10 percent of the construction sites greater than three acres and 5 percent of those less than three acres. The inspection numbers provided to the review team are the same ones OEE

reports to EPA under the terms of its CWA section 106 grant. The reports do not specify the phase of construction for each inspection performed.

In FY 2012, OEE reported issuing 564 NOVs under the program and 77 Administrative Orders. The review team asked OEE if they operate informally, allowing "three strikes" before issuing Administrative Orders. The OEE assistant chief inspector said the program expects 100 percent compliance. It does not give multiple warnings before taking action.

4.8 Training, Outreach, and Education

Section 3.7 of this report provides a summary of training and outreach issues the review team discussed with DWWM staff during the onsite review. The training discussed in that section is applicable to West Virginia's construction, MS4, and industrial stormwater programs. The text below reflects information that is generally unique to the construction stormwater program.

4.8.1 Internal Training for CO and RO Staff

DWWM has a shared drive, which staff of the CO and ROs can access. The division has placed training materials, consisting of program overviews, regulations, and other materials, on the shared drive for new and existing staff.

PP permitting and plan review staff receive on-the-job training from senior staff. New staff begins by writing the simplest permits or reviewing the easiest plans and work their way up to more difficult ones. Managers review and discuss the work of new personnel at more frequent intervals than they do for seasoned staff.

4.8.2 External Training for CO and RO Staff

DWWM encourages its staff to attend workshops and training that supports permit implementation activities. Some of the workshops mentioned included those conducted by the International Erosion Control Association (IECA) and its mid-Atlantic chapter. OEE sends its staff to attain sediment control inspector certification from IECA.

4.8.3 Training and Outreach to Regulated Communities

DWWM personnel cited their construction stormwater general permit Web site as one vehicle the department uses to provide outreach and education to the regulated community and others.[8] The site includes information such as permit application instructions and forms, a copy of the permit, SWPPP development guidance, a GPP template, and links to lists of Tier 3 waters. DWWM conducts training sessions on the construction general permit as part of the annual Construction and Design Expo that caters to construction and design industries. DWWM staff recently completed development of an erosion and sediment control BMP manual and has made it available on the Web site.

According to DWWM staff, developers and consulting engineers are not expressing the need for additional guidance on implementing permit requirements. DWWM staff believe this to be true because the state has had a program in place for multiple years and has worked with the same

[8] http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC_BMP.aspx

parties during that period. DWWM and the construction industry have had time to discuss and resolve issues.

4.9 Oversight of Regional Offices

See section 3.8 for information on this topic.

4.10 Program Strengths Cited

OEE personnel said they believe the biggest strength of their activities is the relationship among managers and inspectors from the CO to the ROs. They also said that because WVDEP has been implementing the construction stormwater program over 20 years (since 1992), there has been time to work through issues and roadblocks relating to permit implementation. OEE also praised PP staff for working with inspectors and informing them of new permit coverages.

PP staff cited their training activities with permit applicants over the years as a program strength. The training has put DWWM in direct contact with regulated parties and has established open lines of communication. Because the state has a relatively low population, it has only a certain number of active contractors. Those contractors have tended to remain constant over the years. PP has been targeting individual contractors who they believe require more guidance in recent training and outreach efforts. DWWM staff believe that in their state it is more important to provide training to the contractors than to the design engineers. The latter community tends to receive training from other state and national venues.

CO OEE staff stated that the construction stormwater program is direct and specific, which makes it easier to enforce than some other permit requirements with benchmarks. NERO and NWRO personnel cited the erosion and sediment control BMP manual as a program strength. See section 3.9 for strengths DWWM cited that are applicable to all DWWM stormwater programs.

4.11 Program Challenges Cited

PP staff said one of their challenges is determining how best to incorporate TMDL limits and special watershed conditions in permits. Another ongoing challenge is incorporating these elements into the plan review process. To date, that incorporation has been time consuming. DWWM staff in the CO and ROs said the construction industry is growing increasingly frustrated with the state's lack of efficiency about reviewing and approving SWPPPs.

As noted in section 3.2 of this report, the ROs are experiencing a high level of turnover among their inspectors. It is an ongoing challenge from a capacity standpoint to train new staff on such a steady basis. OEE inspectors said it is challenging to keep abreast of new erosion and sediment control BMPs and that they would benefit from routine training in this area. One RO staff member stated that OEE inspectors would benefit from becoming Certified Erosion, Sediment, and Stormwater Inspectors (CESSWI certification).

NWRO staff are concerned about the increasing O&G operations in their region and of WVDEP's capabilities to identify and inspect them. The RO needs additional resources to identify sites. NWRO is performing helicopter flights over the region several times per month to

identify locations. It can be impossible to find the sites otherwise, as they tend to be in outback locations where the terrain is rough. Moreover, NWRO inspectors are often not allowed on sites because the site includes the drill pad, an element of operations over which DWWM has no authority. NWRO inspectors voiced concerns about the structural integrity of the ponds, drill pads, and elements of the O&G sites they are seeing. They showed aerial pictures demonstrating their concerns. Ponds, for example, are being installed in steep terrain with narrow side margins and could collapse. The inspectors suspect that the O&G industry has brought personnel from their coastal regions and those personnel are not well versed in the design and construction of industrial operations in mountainous regions.

Observation 4–2. The review team encourages applicable DWWM staff to meet with their counterparts in other states and EPA who are also contending with how to protect water resources posed by Marcellus shale drilling and other O&G operations. The O&G operations in West Virginia tend to be located in headwater areas where waters are generally pristine. Downstream water quality depends, in large part, on the preservation of water quality upstream in addition to existing hydrology. The team fully appreciates that this whole arena is new to both federal and state regulators. Moreover, the issue of O&G control is contentious given the role the industry plays in the nation's (and, more specifically, West Virginia's) economy.

5. Observations and Recommendations—MS4 Program

In this section of the document, the review team briefly summarizes observations of WVDEP's MS4 stormwater program. Where applicable, recommendations are also provided.

5.1 Program Background and Authorities

PP is primarily responsible for administering WVDEP's MS4 program. OEE supports the program by performing inspections and undertaking enforcement actions where necessary. PP has one FTE devoted to administer the MS4 program, a reduction of 0.5 FTE from previous years. The MS4 administrator has the following duties:

- Identify and notify entities requiring permit coverage.
- Review permit applications.
- Write and issue MS4 permits.
- Review annual reports submitted by MS4 permit holders.
- Develop guidance to facilitate MS4 permit holders in achieving permit requirements.
- Provide training and outreach to MS4 community.
- Support OEE in performing inspections of MS4 programs.
- Provide oversight feedback to local governments and nontraditional MS4s (e.g., federal and state agencies) in the form of compliance assistance and informal enforcement actions.

PP staff said they need 1.5–2 FTEs to manage the MS4 program effectively. Ideally, they need a technical person who can help MS4 staff incorporate low impact development (LID) concepts and green infrastructure into their programs.

DWWM's authority for implementing the MS4 stormwater program includes CWA section 402 (U.S.C. 1251 et. seq.) and Chapter 22, Article 11 of the West Virginia Code (W. Va. Code R. § 22-11).

5.2 Facility Universe

West Virginia has zero Phase I MS4s and 47 Phase II MS4s. Table 5–1 provides a breakdown of the MS4s by jurisdiction type, and Appendix E provides a listing by name. A PP staff person said 10 of the 47 Phase II MS4s have permit waivers. Most received their waivers because they have combined sewer systems and population sizes of less than 2,000. One of the 10 is a municipality that has less than 1,000 residents and no resources to implement permit requirements. Appendix E also lists the MS4s with waivers.

Table 5–1. West Virginia's Phase II MS4s by Jurisdiction Type

Jurisdiction Type	Phase II MS4s
Counties	1
Cities/Towns	35
State Transportation Agencies	2

Jurisdiction Type	Phase II MS4s
Schools/universities/hospitals	4
Federal Facilities	5
Totals	**47**

West Virginia is gaining an additional eight MS4s due to the 2010 Federal Census. They are located in the department's southeast and southwest regions. A map showing West Virginia's counties is included in section 4.3 and Appendix D of this document. The additional jurisdictions include the following (per email from Sherry Wilkins, DWWM Permitting Program, April 12, 2013):

WVDEP Southeast Region

- Town of Clendenin (Kanawha County)
- Town of Eleanor (Putnam County)
- Town of Winfield (Putnam County)

WVDEP Southeast Region

- City of Mt. Hope (Fayette County)
- City of Oak Hill (Fayette County)
- Town of Fayetteville (Fayette County)
- Town of Mabscott (Raleigh County)
- Town of Sophia (Raleigh County)

PP staff said they would also likely review whether they have permitted all applicable nontraditional entities in the state (e.g., prisons, hospitals, and universities) at this time.

5.3 Permitting Activities

WVDEP has a single general permit under which it authorizes coverage to Phase II MS4s. WVDEP issued the first MS4 general permit in 2003. The current permit (Permit No. WV0116025) took effect on July 22, 2009 and expires on July 22, 2014. Affected parties were given 30 days from the effective date of the permit to submit their NOVs and pay their application fees ($17.50 per acre of covered area up to a maximum of $1,750) to WVDEP. They had six months from the permit effective date to submit a site registration application (SRA) and a stormwater management plan (SWMP).

A party may submit a letter to WVDEP requesting a waiver from permit requirements. DWWM requires sampling data in order to make a determination on a waiver. With the next iteration of the MS4 permit in 2014, all MS4s, including those with waivers, will be required to submit NOIs. At that time, any party interested in a waiver was required to submit a request to WVDEP. The review team did not discuss the specific criteria WVDEP uses to make its waiver determinations. PP staff, however, said they would need to ensure the criteria are consistently applied under the new permit.

WVDEP has the legal authority to allow co-permittees under the MS4 program, but it has not done so to date. DWWM staff said they would like guidance on implementing a co-permittee program. They are concerned about the legal ramifications of having multiple entities under the

same permit. They also would like to know how the state would handle enforcement actions when there are co-permittees. DWWM staff discussed the possibility of requiring co-permittees to form a separate entity that would cover penal or operating expenses.

> **Observation 5–1.** Some of the other states in EPA Region III allow co-permittees to their general permits. They typically put the burden on the original applicant to bring the co-permittees forward. They also require interjurisdictional agreements, specifying the elements those agreements are to address, to be established between the parties. DWWM staff could call Pennsylvania and Delaware MS4 staff to discuss how those two states have designed their programs and what lessons they have learned from their respective approaches.

> **Observation 5–2**. The review team strongly encourages WVDEP to specify the criteria it will use to allow MS4 waivers. As noted by PP staff themselves, the criteria should be consistently applied throughout the state.

WVDEP requires Phase II permittees to develop and operate according to a SWMP, which must address the minimum control measures (MCMs), specifying goals, milestones, and measures for each. Permittees must also address how they will enforce their respective programs. The permit spells out minimum performance measures in each MCM area and requires MS4s to meet waste load allocations (WLAs) if discharging to impaired waters with approved TMDLs. Under the permit, MS4 permittees must inform parties seeking local building and other permits when they must apply for coverage under the state's general permit for construction stormwater activities. Finally, the permit requires the MS4 permit holders to submit annual reports, addressing components spelled out in their permits, to WVDEP. Permittees are required to post their SWMP and annual reports on their Web sites.

> **Observation 5–3.** DWWM should consider revising the criteria in the next edition of the permit based on dialog with the state's MS4s and the technical stormwater community. One of the site design standards included in the MS4 permit for new and redevelopment requires the design of stormwater management systems "that keep and manage on site the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measureable precipitation." (WVDEP 2009). Staff from several MS4 programs the review team visited mentioned that, due to the steep slopes, it was difficult to meet the one-inch capture requirement and, in some areas, dangerous. Water infiltration into loose earth on a steep slope poses structural risks. [Note to EPA: Does EPA want to make this observation? It could be taken as the Agency advocating a lower standard. If we say anything, we should probably be more precise.]

> **Observation 5–4.** The review team encourages PP to solicit input from RO inspectors when developing the next iteration of permit requirements, given their experiences auditing MS4s. RO inspectors are also encouraged to provide to PP information on concerns identified when inspecting MS4s.

WVDEP's permit specifies monitoring requirements for total Kjeldahl nitrogen, nitrate nitrogen, nitrite nitrogen, and total phosphorus. Permittees are required to collect stormwater samples once

every six months, in the spring and fall seasons, during the "first flush" of rainfall at least 20 minutes, but not more than 50 minutes after rainfall has reached 0.5 inches, preceded by a period of dry weather of at least 48 hours (WVDEP 2009).

West Virginia's permit provides coverage for permittees not covered under the state's MSGP that own or operate privately owned treatment works (POTWs), maintenance garages, or any other industrial activities. The MS4 permit specifies additional monitoring requirements for those MS4s requiring coverage for stormwater discharged from POTWs or industrial operations.

5.4 Plan Review Activities

In this section, the review team provides a summary of discussions regarding DWWM's SWMP review activities. Section 5.6 contains information on annual report review activities.

PP's single MS4 FTE reviews and approves all NOIs and SWMPs. A backlog of SWMPs (due in January 2010) submitted in response to the current permit (effective in July 2009) awaits review. The review team met with staff from several MS4s who expressed frustration about having not received WVDEP SWMP approval.

PP staff said their main goal in reviewing SWMPs is to ensure the plans are complete and appropriate for the stormwater issues applicable to the MS4. They review SWMP supporting material, such as stormwater ordinances, maps, and lists of impaired water bodies. They also check for any WLAs assigned to the MS4. WVDEP issues public notices for all SWMPs.

DWWM staff stated that the quality of the initial SWMPs submitted varies greatly. After review of the initial SWMPs, DWWM staff might have only a few questions for the permittee, or they may need considerable back-and-forth communications. PP staff expressed frustration at having to spend considerable time re-writing SWMPs for some of their permittees.

5.5 Data Management

The WVDEP uses ERIS to track MS4 activities and to manage MS4 documents. ERIS does not have a category for MS4s. DWWM has placed the MS4 information under the industrial category as a separate permit subtype. The subtype allows PP staff to produce MS4 lists. There is no place in ERIS to track and monitor permittee activity relative to the MCMs. PP has used a Microsoft Excel spreadsheet in the past to track annual report submittals by MS4s (i.e., due dates and submittal dates).

> **Observation 5–5.** The review team is not clear the extent to which the above ERIS situation poses a management problem for PP staff. If it is significant, the review team encourages DWWM to seek support from the Office of Technology Information for a temporary fix to ERIS or approval to develop a temporary Access or other database until IRIS comes online in 2016. Another alternative is to increase program FTEs until database inefficiencies are rectified.

See section 3.4 for additional information on the data systems used to support WVDEP's stormwater programs.

5.6 Compliance and Enforcement Activities

Section 3.5 of this report provides an overview of WVDEP's compliance and enforcement procedures and tools. To avoid redundancy, the review team has not repeated that information here. The information discussed below is unique to the MS4 stormwater program.

5.6.1 Overall MS4 Performance

CO staff complimented the city of Charleston on its MS4 program and the strides it has made in implementing the program. CO and RO staff also commented favorably on West Virginia University's (WVU) program, as did several of the MS4 permit holders. NERO staff stated that WVU has had great success implementing the one-inch capture requirement.

When asked how well the MS4s were doing in meeting their MCM requirements, PP staff said progress had been slow, with a few exceptions. Both CO and RO staff referred to many of the MS4 programs as still being "in their infancy." Their observation is that the personnel charged with administering the MS4s still have a significant learning curve in terms of fully understanding permit requirements and program responsibilities. DWWM staff cited a lack of funding in small municipalities as a major hurdle. Both CO and RO staff said they have seen MS4 permit responsibilities pushed onto a mayor or wastewater treatment plant manager without any commensurate training or funding. CO and RO staff said WVDEP had nearly zero presence in the field during the first permit cycle. They believe that the permittees interpreted that as a sign they could "slack off."

> **Observation 5–6**. West Virginia's first MS4 permit was issued in 2003, 10 years ago. The permit at section II.B.6.states, "The terms and conditions of this permit and the permittees [sic] approved SWMP must be fully implemented, except where noted, within five years of the effective date of this permit." It is unreasonable that MS4 permit holders have not fully implemented their programs after nearly two permit terms. The permit at section II.B.5 further states, "Extension of milestones will be granted, for good cause shown. Failure to implement effective best management practices (BMPs) is not good cause to extend milestones."

PP and OEE staff said they are not performing oversight of DOH activities. DOH areas intersect with other MS4 jurisdictions; however, DOH is not required to work with local MS4 programs. Some of the MS4 communities with whom the review team met said they have developed better relationships with DOH over time, while others have not. One MS4 said that DOH only cares about the conduit area (curb to curb), yet their actions cause problems beyond that area. The local MS4's view was that WVDEP selectively enforces program requirements when it comes to DOH.

> **Observation 5–7.** As previously mentioned, EPA is in the process of a national rulemaking to strengthen the stormwater program. One option the agency is considering is to establish specific requirements for transportation entities.

5.6.2 MS4 Audits

WVDEP's policy is to conduct audits of its MS4s once per permit cycle, but it has not achieved this goal to date. OEE personnel reported that they have audited 20 Phase II MS4s since 2010 and plan on auditing seven in 2013, bringing the total of audited MS4s to 27 before end of the current permit cycle.[9] OEE's CMS obligation is to inspect 10 percent of the MS4s per year over a single permit term. Under this obligation, OEE is only required to conduct four MS4 audits / inspections per year. In terms of the substance of the audit, OEE staff said they typically focus on two of the six MCMs.

Observation 5–8. The review team recognizes the extra MS4 inspection effort by OEE.

Observation 5–9. RO inspectors and staff of the MS4s expressed interest in PP staff visiting their offices to discuss and address permit implementation issues. It would probably also be worthwhile for the PP staff person to participate in some of the MS4 audits. The review team encourages PP to provide these opportunities for its MS4 program staff person. We include a recommendation elsewhere in this section for additional FTEs to enable the performance of these and other key oversight activities.

5.6.3 Annual Report Review

PP staff said that due to limited program capacity, they have been unable in recent years to track when annual reports are due and when they are submitted. PP staff also reported that they are unable to review the annual reports submitted by MS4s. Personnel have focused instead on completing SWMP reviews and developing a guidance manual of stormwater BMPs.

Observation 5–10. A recent EPA Region III review of some Region III state annual report submittals shows them to be lacking in substantive content. In general, they are not meeting their intended purposes. A state's failure to review the reports only exacerbates this problem. An MS4 is not likely to take reporting seriously when it does not receive feedback or oversight from the state regarding report content. CWA regulations at section 123.26(a) of Title 40 of the *Code of Federal Regulations* (CFR) require NPDES authorities to review compliance documentation: "State programs shall have procedures for receipt, evaluation, retention and investigation for possible enforcement of all notices and reports required of permittees and other regulated persons (and for investigation for possible enforcement of failure to submit these notices and reports)."

PP staff said they enter MS4 documentation into Water Kiosk so it is available for use by OEE inspectors. Some of the RO inspectors, however, told the review team that obtaining data from Water Kiosk is highly inefficient. See section 3.4 for OEE inspector concerns in this area. The review team is doubtful that OEE inspectors are thoroughly reviewing annual reports; however, the team recognizes they may perform a cursory review before an inspection. The CMS obligates OEE to inspect 10 percent of the MS4s per year during a permit cycle, which is only half of the universe of MS4s. RO inspectors do not seem aware of any requirement, if there is one, that they should be conducting thorough

[9] The review team did not evaluate whether WVDEP's MS4 audit procedures are similar to or more stringent than EPA's.

reviews of MS4 annual reports. The review team recommends that DWWM review xx percent of the MS4 annual reports per year, making sure to review at least xx annual reports per permittee per permit cycle. [Note to EPA: You might not want specific numbers here. There is text something like this in the MD report. We should be consistent between the two reports.]

Observation 5–11. WVDEP has the potential to reduce its annual report review workload when it issues its new Phase II MS4 general permit. The federal regulations allow a state to require its Phase II MS4s to submit annual reports in years 2 and 4 after the first permit term.

5.7 Training, Outreach, and Education

In this section, the review team provides a summary of training DWWM CO and RO staff have received in addition to training, education, and outreach they have provided to the regulated community. See section 3.7 for a discussion of training, education, and outreach activities applicable to WVDEP's three stormwater programs.

5.7.1 Training of DWWM Staff

DWWM staff stated that several sources, including the EPA Web site, were helpful in acquiring training on the MS4 program. In addition, DWWM staff stated that they are encouraged to attend as many conferences as possible, including the Stormwater Coordinators Conference, which was recently held in Kansas City. DWWM personnel also reported reading numerous technical guidance manuals developed by EPA and by other experts in the stormwater management field. Staff in the CO and NERO stated that they felt that initially they were learning about the MS4 program and how to implement it at the same time as the MS4 permit holders. NWRO reported tracking the training each of its staff members receives each year using an Excel spreadsheet.

5.7.2 Guidance Documents for Regulated Community

PP staff have developed a number of guidance manuals for the regulated community and made them available via its Web site. DWWM's MS4 permit and Web site provide links to numerous EPA documents, including developing SWMPs, establishing performance measures, and conducting public outreach and education campaigns. DWWM's Web site also provides links to several technical manuals developed by the Center for Watershed Protection, including the following:

- Urban Subwatershed Restoration Manual No. 3: Urban Stormwater Retrofit Practices.
- Urban Subwatershed Restoration Manual No. 4: Urban Stream Repair Practices.
- Urban Subwatershed Restoration Manual No. 8: Pollution Source Control Practices.
- Municipal Pollution Prevention/Good Housekeeping Practices.
- Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments.
- Protection Monitoring to Demonstrate Environmental Results.
- Managing Stormwater in Your Community.

The PP staff member assigned to manage the MS4 program has also been developing a technical guidance document on stormwater management technologies. Staff of many of the MS4s visited who had reviewed draft versions gave the document high praise. They are looking forward to publication of the document. The Chesapeake Bay Stormwater Network is assisting PP in developing the manual.

> **Observation 5–12.** The review team congratulates PP on its development and near completion of the manual, especially in light of limited staff capacity.

5.7.3 Training and Outreach for Regulated Community

DWWM staff conducts training in WVDEP's Charleston office on a variable frequency basis to educate local government personnel on the goals and expectations of the MS4 program. In October 2012, DWWM conducted a training session on how MS4 permit holders can educate their citizens on the importance of stormwater control. The Division is planning to conduct a training session in 2013 on the stormwater management technical manual that is almost completed.

PP has established an "MS4 List Serve" for members of the MS4 community. Participants can submit questions to the List Serve, which members can answer and discuss. DWWM also announces information and provides links to key resources via the List Serve. The List Serve allows users to have conversations with selected users as well. PP said the MS4 List Serve is similar to the national Nonpoint Source List Serve, which many MS4 communities use.

Staff in several of the MS4s visited commented positively on the training and outreach provided by DWWM. They also noted that they know who to call to request information or assistance and that PP staff try to be as helpful as they can.

5.8 Oversight of Regional Offices

See section 3.8 for information on this topic.

5.9 Program Strengths Cited

PP staff said the specificity of permit requirements with respect to four of the six MCMs is a strength of the program. They also cited permit supporting material (e.g., fact sheet and responsiveness summary) as a strength. Staff is proud of its outreach efforts to explain program expectations and of the resources it makes available to the regulated community via the DWWM Web site.

5.10 Program Challenges Cited

PP staff reported lack of staff capacity as a program challenge. PP needs at least one additional FTE to support program efforts. PP and OEE staff cited failures of MS4 permit holders to implement the required six MCMs to be a weakness. Some staff said that failure to enforce requirements of the permit has allowed permittees to take their time developing programs. For example, some are still in the process of passing ordinances giving them the legal authority to implement their programs. The structure of WVDEP's program also does not give the state any

say over the content of ordinances. Some local governments have issues understanding why the MS4 program is important; therefore, they are not willing to provide the necessary funding. The RO inspectors said staff from some of the MS4s visited during the recent inspection cycle confirmed this issue.

Observation 5–13. The review team concurs that PP requires additional staff capacity to successfully implement the program and to conduct necessary oversight activities. As expressed in previous observations, the team is concerned about the backlog of SWMPs to review, that staff are not tracking annual report due dates and submission dates, and that staff are not reviewing annual reports. Of greater concern is that many of the MS4s have failed to fully implement their SWMPs, even though they are close to finishing their second permit cycle (an elapsed period of 10 years) and that WVDEP has failed to enforce its own permit requirements in this area.

6. Observations and Recommendations—Industrial Stormwater Program

The review team summarizes its observations of West Virginia's industrial stormwater program in this section of the report. Note that the team's discussions with DWWM staff focused mainly on the MSGP program.

6.1 Program Background and Authorities

DWWM provides coverage to industries needing to discharge uncontaminated stormwater under individual NPDES permits or the Division's MSGP. PP staff are responsible for reviewing permit applications or notices of intent (NOI), developing and issuing the permits, developing guidance for the regulated community, and reviewing submitted plans and reports. The PP has one FTE dedicated to the MSGP program, although program staff reported needing 1.5 FTEs on average. As discussed in section 3.5, OEE personnel inspect the permitted industries and initiate enforcement actions where necessary.

DWWM's authority for implementing the industrial stormwater program includes CWA (U.S.C. 1251 et. seq.) and Chapter 22 of the West Virginia Code (W. Va. Code R. § 22-11).

6.2 Facility Universe

As of June 30, 2012, DWWM had 275 multi-sector general permittees and an additional 68 industries with no exposure certification. Table 6–1 shows the distribution of the 275 permittees by regional office.

Table 6–1. Number of Industries with MSGP Coverage by Region, As of June 30, 2012

	Northwest Region	Southwest Region	Northeast Region	Southeast Region	Total
MSGP Coverage	59	91	50	75	275
As Percent of Total Universe	22%	33%	18%	27%	
No Exposure Certificates					68

Source: Email and attached Excel file from Yogesh Patel, DWWM Permitting Program, on January 13, 2013.

DWWM has not initiated any efforts in recent years to identify non-filers except through the activities of OEE (i.e., inspection focus on salvage yards and concrete plants). PP staff rely on OEE personnel to inform them if they see industries operating without permits. OEE issues NOVs to such facilities. PP staff estimated they may receive approximately two to three tips per month from OEE inspectors.

6.3 Permitting Activities

As noted previously, DWWM provides NPDES permit coverage to industries discharging stormwater through individual permits or the MSGP. The individual permits may be stormwater-only or they may be for multiple discharge types (e.g., wastewater and stormwater discharges). PP staff estimated having approximately five in the former category and 15–20 in the latter. The language in the individual permits is similar to that in the MSGP.

DWWM automatically requires industries with salt storage greater than 50,000 tons to have an individual stormwater permit. DWWM also issues DOH its own permit. The Division might place an industry under an individual permit if it experiences ongoing compliance issues under the general permit.

DWWM issued its current MSGP (Discharge Permit No. WV0111457) on April 1, 2009. It expires on March 31, 2014. Staff anticipate beginning work on the new permit in July 2013, but they do not expect to make major changes. WVDEP's MSGP includes two industrial sectors that are not included in the federal permit. These include ammonia-nitrate trans loading operations (explosives for the mining industry) and all-terrain vehicle racing facilities.

Applicants for coverage under the MSGP complete an NOI. In addition to the usual data, the NOI requires applicants to submit a site map, provide the square footage of the facility and details about process operations. First time applicants are required to prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) and GPP. PP's one FTE is responsible for pulling and reviewing the NOIs along with the SWPPP and GPP. The PP reviewer can ask OEE staff to inspect a site to confirm information in the NOI and SWPPP.

The PP NOI and plan reviewer classifies the industry by standard industrial classification (SIC) code (20 major categories as under federal permit plus two additional industries as noted above). The MSGP also includes a catchall category for those industries not belonging to one of the listed categories. For MS4-related industrial activities (e.g., fleet maintenance, etc.), DWWM has the ability to either permit those activities under the MS4 permit or under the MSGP.

> **Observation 6–1.** The review team applauds DWWM for staying on schedule to develop and implement a new MSGP. The team requests brief feedback from DWWM on whether the Division will discuss inclusion of additional industrial categories under the new permit based on input by OEE inspectors and results of recent water quality assessments.

> **Observation 6–2.** As the new MSGP is developed, it would be worthwhile for PP staff to discuss enforceability issues with OEE inspectors. OEE inspectors told the review team that the MSGP is harder to enforce than the construction general permit, mainly because it includes benchmarks. Some states have used benchmark exceedances as a means to force permittees into revamping their BMPs and SWPPPs.

6.4 Plan Review Activities

As noted above, all first-time applicants for coverage under the MSGP must submit a SWPPP and GPP. PP has developed and published a sample SWPPP on its Web site. Since the 2004 MSGP, DWWM has reviewed all plans. Permittees must maintain their plans onsite and make them available for review by OEE inspectors.

6.5 Data Management

CO and RO staff use ERIS and ePermitting to track and maintain lists of active permittees. See section 3.4 for additional information on DWWM's data management systems.

6.6 Compliance and Enforcement Activities

WVDEP's compliance and enforcement activities are largely the same for the construction, MS4, and industrial stormwater programs, although specific inspection protocols will vary. Section 3.4 of this report provides information relevant to all three programs, whereas the discussion below is specific to the industrial stormwater program.

6.6.1 Inspections

WVDEP's obligation for industrial stormwater inspections is 5 percent annually under the CMS. This equates to approximately 50–56 industries with MSGP coverage and 1.25 industries with individual stormwater permits, using the facility universe numbers above. As presented in section 3.5 of this report, OEE performed significantly more industrial stormwater inspections (265) in FY 2012 than required by the CMS. Staff achieved this number despite having said that MSGP sites are lower in priority than the many other sites they are required to inspect. One reason for the lower priority is that many local inspectors conduct inspections of the industries, likely for pretreatment purposes. OEE, therefore, considers the industries as being partially addressed. The ROs use industrial inspections as a means to train new inspectors, as they are relatively straightforward to conduct. The training includes an onsite review and verification of SWPPP activities.

The MSGP requires covered industries to conduct self-monitoring. Sampling requirements (parameters, sampling frequency, and protocols) are specific to each industrial category. The self-monitoring requirements are a component of a permittee's SWPPP. In general, MSGP permittees are required to sample their stormwater and submit the results every six months using eDMR. A PP staff member compares the results to the benchmark values outlined in the MSGP. PP said it is up to OEE inspectors to identify sites with sampling values at or near the benchmarks and follow-up with inspections.

> **Observation 6–3.** The team would like to see PP develop a mechanism to inform OEE inspectors when it identifies sampling results at or near MSGP benchmarks until such time that eDMR access issues are resolved for RO staff. On the surface, it does not make sense for PP to spend the resources reviewing the results if it does not share the findings with the staff who are required to follow-up on potential problems. See also Observation 6–5.

WVDEP inspectors can collect compliance samples at a site if they identify potential pollution to waters of the state. When asked if inspectors are able to focus on stormwater when conducting inspections of large industrial facilities (i.e., those with other discharges such as wastewater), RO supervisors and inspectors responded affirmatively.

6.6.2 Compliance and Enforcement Reporting

MSGP permittees are required to develop and submit annual reports. DWWM personnel said they do not review these reports due to lack of staff capacity. OEE inspectors, however, may briefly review the reports while doing facility inspections.

> **Observation 6–4.** The review team believes DWWM should have one or more staff members review these reports. Moreover, DWWM should record receipt of the reports

and of their review. If DWWM is only able to review the reports as part of the inspection process, due to capacity issues, those reviews should at a minimum be documented.

PP and OEE staff said the three most common reasons for industrial stormwater violations are inadequate housekeeping, no secondary containment of chemicals and equipment, and improper sampling procedures (timing, sample handling, methods, representative sampling sites, and benchmark exceedances). Those permittees who have exceeded benchmark values are required to modify their SWPPPs to mitigate the sources of the stormwater pollutants.

Observation 6–5. If it is up to OEE inspectors to identify the situations when a facility's self-monitoring results exceed permit benchmarks, then presumably it is up to OEE inspectors to verify the offending permittee has rectified the problem and updated its SWPPP. Since OEE cannot easily obtain current monitoring data from eDMR, they cannot fulfill this obligation. This situation further bolsters the team's recommendation at Observation 6–3.

6.7 Training, Outreach, and Education

Refer to section 3.7 of this report for pertinent subject matter.

DWWM provides some outreach and training to industrial stormwater permittees. It provided training to the various industrial sectors when the MSGP was first issued. It has developed a sample SWPPP and made that available on its Web site. It also has developed a brochure that outlines the impacts of industrial activities on stormwater quality. OEE inspectors said they provide the brochure to facilities if they think they need it or if requested. The Division does not manage a list serve on industrial stormwater permit issues. It is not clear to the review team if there is a need for such a service.

6.8 Oversight of Regional Offices

Consult Section 3.8 of this report for information on this topic.

6.9 Program Strengths Cited

DWWM staff said the greatest strength of the industrial stormwater program is that the MSGP covers most industries that affect stormwater quality.

6.10 Program Challenges Cited

It is difficult for the PP reviewer to assess whether industries have submitted accurate facility descriptions and site maps. The PP reviewer must often ask an OEE inspector to visit a site to verify the information. Staff capacity in the PP is another program challenge. The program could use two FTEs in years when the permit is being revised and 1.5 thereafter.

7. Summary of Observations and Recommendations

This section provides a sequential list of the review team's observations of WVDEP's construction, MS4, and industrial stormwater programs based on a program review performed in January 2013. The team's recommendations, where made, are also included.

- OEE is experiencing a very high inspector turnover rate. OEE is working with the state's Division of Labor (in the Department of Commerce) to create a career path for inspectors that would presumably provide increased pay with advancement along the path. The review team is concerned that OEE is moving into an almost perpetual mode of recruiting new inspectors and training them. This is clearly not an efficient use of OEE staff time, especially when staff capacity is limited program wide. It might be worthwhile for OEE to talk with department heads at state colleges and universities to see if some pathways could be created for new inspection staff. *(Observation 3–1, section 3.3, "Program Resources")*

- The review team strongly urges DWWM to secure support from WVDEP's information technology program to solve problems with the division's data systems. This is crucial activity for those systems IRIS will not replace namely ePermitting and eDMR. The team also urges CO staff to recognize the challenges the systems pose to RO staff and commit to resolving the problems collectively. *(Observation 3-2, section 3.4.7, "System Challenges")*

- The team encourages DWWM to develop an internal plan if one does not already exist to provide ongoing training and other assistance (e.g., hot line or other) to the regulated community on using ePermitting and eDMR. The team's rationale for this recommendation is that IRIS is not going to replace ePermitting and eDMR; new permittees will be entering the program continually; and some existing permittees (e.g., those with infrequent monitoring requirements) are likely to forget how to use the system between transmissions. *(Observation 3-3, section 3.4.7, "System Challenges")*

- RO inspectors stated that permit holders often negotiate their penalties down to negligible amounts. Consequently, the penalties do not provide much of a deterrent to some permit holders. Paying a fine can be cheaper than instituting changes to comply with a permit. The review team encourages OEE to re-evaluate its processes for negotiating penalties and institute changes to ensure penalties are indeed deterrents and their application is uniform throughout the state. [Note to EPA: Do we want to say this given that negotiations are inevitable as part of the enforcement process? Does EPA have standard language regarding consistency issue that we should use?] *(Observation 3–4, section 3.5.2, "Enforcement Processes and Tools")*

- OEE staff include, as appropriate, the participation of RO inspectors when meeting with permit holders who have received administrative or other orders. NERO inspectors said the 8+ hours of travel and meeting time required for them to participate in such meetings is excessive. The review team suggests OEE consider the use of video conferencing technologies for some of the enforcement meetings to reduce travel burden (i.e., time and expenses) on RO staff. *(Observation 3-5, section 3.5.2, "Enforcement Processes and Tools")*

- DWWM does not have authority to impose post-construction requirements on construction general permit holders. EPA is in the process of developing a national rulemaking for new development and redevelopment that may require post-construction requirements.[10] *(Observation 4–1, section 4.4.1.6, "Post-Construction Requirements")*

- The review team encourages applicable DWWM staff to meet with their counterparts in other states and EPA who are also contending with how to protect water resources posed by Marcellus shale drilling and other O&G operations. The team fully appreciates that this whole arena is new to both federal and state regulators. Moreover, the issue of O&G control is contentious given the role the industry plays in the nation's (and, more specifically, West Virginia's) economy. *(Observation 4-2, section 4.11, "Program Challenges")*

- Some of the other states in EPA Region III allow holders of construction general stormwater permits to have co-permittees. DWWM staff might want to call Pennsylvania and Delaware MS4 staff and discuss how they have designed their programs and any lessons they have learned through implementing those programs. *(Observation 5–1, section 5.3, "Permitting Activities")*

- The review team strongly encourages WVDEP to specify the criteria it will use to allow MS4 waivers and then apply that criteria consistently throughout the state. (*Observation 5-2, section 5.3, "Permitting Activities")*

- DWWM should consider revising the criteria in the next edition of the Phase II MS4 permit based on dialog with the state's MS4s and technical stormwater community. Some of the MS4 permit holders with whom the review team met expressed their difficulties in achieving the 1-inch onsite capture requirements and stated that it was dangerous to do so in steep terrain. Additionally, DWWM should solicit input from RO inspectors when developing the next iteration of MS4 permit requirements given their experiences auditing MS4s. RO inspectors are also encouraged to provide information to PP on concerns identified when inspecting MS4s. *(Observation 5–3 and 5–4, section 5.3, "Permitting Activities")* [Note to EPA: This recommendation will need to be updated based on decision made in section 5.]

- WVDEP uses ERIS to track MS4 activities and to manage MS4 documents. ERIS does not have a category for MS4s. DWWM has placed the MS4 information under the industrial category as a separate permit subtype. The subtype allows PP staff to produce MS4 lists. There is also no place in ERIS to track and monitor permittee activity relative to the MCMs. The review team is not clear the extent to which the above ERIS situation poses a management problem for PP staff. If it is significant, the review team encourages DWWM to seek support from OEI for a temporary fix to ERIS or approval to develop a temporary Access or other database until IRIS comes online in 2016. Another alternative would be to increase program FTEs until database inefficiencies are rectified. *(Observation 5–5, section 5.5, "Data Management")*

[10] http://cfpub.epa.gov/npdes/stormwater/rulemaking.cfm

- The review team finds it unacceptable that some of West Virginia's MS4s have not implemented their MS4 programs even though they have been subject to the requirements for 10 years. The permit at section II.B.6.states, "The terms and conditions of this permit and the permittees [sic] approved SWMP must be fully implemented, except where noted, within five years of the effective date of this permit." The permit at section II.B.5 further states, "Extension of milestones will be granted, for good cause shown. Failure to implement effective best management practices (BMPs) is not good cause to extend milestones." *(Observation 5–6, section 5.6.1, "Overall MS4 Performance"* and *Observation 5–13, section 5.10, "Program Challenges Cited")*

- PP and OEE staff said they are not performing oversight of DOH activities. Some of the MS4s interviewed expressed frustration over DOH activities and one commented that WVDEP treats DOH differently than it does the other MS4s when it comes to enforcing program requirements. EPA is in the process of a national rulemaking to strengthen the stormwater program. One option is to establish specific requirements for transportation facilities. *(Observation 5–7, section 5.6.1, "Overall MS4 Performance"* and *Observation 5–13, section 5.10, "Program Challenges Cited")*

- The review team recognizes the extra MS4 inspection effort by OEE. *(Observation 5–8, section 5.6.2, "MS4 Audits")*

- RO inspectors and staff of the MS4s expressed interest in PP staff visiting their offices to discuss and address permit implementation issues. It would be worthwhile for the PP staff person to participate in the MS4 audits if not already doing so. *(Observation 5–9, section 5.6.2, "MS4 Audits")*

- PP is not reviewing the annual reports submitted by MS4s due, in large part, to limited staff capacity. DWWM is reminded that CWA regulations at 40 CFR 123.26(a) require NPDES authorities to review compliance documentation: "State programs shall have procedures for receipt, evaluation, retention and investigation for possible enforcement of all notices and reports required of permittees and other regulated persons (and for investigation for possible enforcement of failure to submit these notices and reports)." *(Observation 5–10, section 5.6.3, "Annual Report Review"* and *Observation 5–13, section 5.10, "Program Challenges Cited")*

- WVDEP has the potential to reduce its annual report review workload when it issues its new Phase II MS4 general permit. The federal regulations allow a state to require its Phase II MS4s to submit annual reports in years 2 and 4 after the first permit term. *(Observation 5–11, section 5.6.3, "Annual Report Review")*

- The review team congratulates PP (and the Chesapeake Stormwater Network) on its development and near completion of the technical guidance document on stormwater management technologies, especially in light of limited staff capacity. *(Observation 5–12, section 5.7.2, "Guidance Documents for Regulated Community")*

- The review team concurs that PP requires additional staff capacity to successfully implement the program and conduct necessary oversight activities. As expressed in previous observations, the team is concerned about the backlog of SWMPs to review, that staff are not tracking annual report due dates and submission dates, and that staff are not reviewing annual reports. Of greater concern is that many of the MS4s have failed to fully implement their SWMPs even though they are close to finishing their second permit cycle (an elapsed period of 10 years) and that WVDEP has failed to enforce its own permit requirements in this area. *(Observation 5–13, section 5.10, "Program Challenges Cited," Observation 5–6, section 5.6.1, "Overall MS4 Performance," Observation 5–7, section 5.6.1, "Overall MS4 Performance,"* and *Observation 5–10, section 5.6.3, "Annual Report Review")*

- The review team applauds DWWM for staying on schedule to develop and implement a new MSGP. The team requests brief feedback on whether the division will discuss inclusion of additional industrial categories under the new permit based on input by OEE inspectors and results of recent water quality assessments. *(Observation 6–1, section 6.3, "Permitting Activities")*

- As the new MSGP is developed, it would be worthwhile for PP staff to discuss enforceability issues with OEE inspectors. OEE inspectors told the review team that the MSGP is harder to enforce than the construction general permit, mainly because it includes benchmarks. Some states have successfully required permittees to revamp their BMPs and SWPPPs when they have exceeded permit benchmarks. *(Observation 6–2, section 6.3, "Permitting Activities")*

- The team would like to see PP develop a mechanism to inform OEE inspectors when it identifies sampling results at or near MSGP benchmarks until such time that eDMR access issues are resolved for RO staff. On the surface, it does not make sense for PP to spend the resources reviewing the results if it does not share the findings with the staff who are required to follow-up on potential problems. *(Observation 6–3, section 6.6.1, "Inspections"; See also Observation 6–5, section 6.6.2, "Compliance and Enforcement Reporting")*

- The review team believes DWWM should have one or more staff members review MSGP annual reports. Moreover, DWWM should record receipt of the reports and of their review. If DWWM is only able to review the reports as part of the inspection process, due to capacity issues, those reviews should at a minimum be documented. *(Observation 6–4, section 6.6.2, "Compliance and Enforcement Reporting")*

- If it is up to OEE inspectors to identify the situations when a facility's self-monitoring results exceed permit benchmarks, then presumably it is up to OEE inspectors to verify the offending permittee has rectified the problem and updated its SWPPP. Since OEE cannot easily obtain current monitoring data from eDMR, they cannot fulfill this obligation. This situation further bolsters the team's recommendation at Observation 6–3. *(Observation 6–5, section 6.6.2, "Compliance and Enforcement Reporting")*

8. References

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Appendices

Appendix A—Document Request List

Appendix B—Copy of Program Questionnaire

Appendix C—Attendance Lists for Various Review Meetings

Appendix D—Map of Regional Office Boundaries

Appendix E—West Virginia MS4 Communities